

REMARKS

Reconsideration and withdrawal of the examiner's rejections under 35 USC § 103 are respectfully requested in view of the above amendments and the following remarks.

Independent Claims 1 and 11 have been amended to specify that the insoluble fibers have a length from 25 to 400 microns and a width from 3 to 20 microns. Support for this subject matter may be found in Claim 14 and throughout the Specification.

Care has been taken not to introduce any new matter.

The Present Invention

As set forth in independent claims 1, 11 and 14, *the present inventions are directed to an edible oil-in-water emulsion or a multiple emulsion comprising an oil-in-water phase, a method for making the edible emulsion and a food product comprising the edible emulsion. The edible emulsion comprises, among other things, insoluble fibers and specifically limits the amount of carbohydrates (e.g. sugar, starch, gums) and oil.* The reduced oil food products made with the edible emulsion having insoluble fiber with a length from 25 to 400 microns and a width from 3 to 20 microns have consumer acceptable viscosities and texture and sensorial properties consistent with full fat food products. A critical sensorial property is that 2 ml of the emulsion will completely dissipate in a mouth of a consumer within 60 seconds. This is achieved in part by limiting the amount of carbohydrate within the edible emulsion and in part by use of insoluble fibers that are homogenized in the homogenizer according to the present invention. Such food products also have the benefit of being substantially free or completely free of carbohydrates; therefore, very desirable to high protein/low carbohydrate dieters. See Specification at page 2, lines 9-17.

Coarse, as used herein means the insoluble fibers are detectable in the emulsion thereby producing discernible grainy or particle comprising characteristics when in the mouth. Smooth, as used herein, means no discernible grainy or particle comprising characteristics when in the mouth. The high pressure homogenizer used according to the present invention is used to activate the insoluble fibers to increase the viscosity of the product. The homogenizer is also used to create texture contrast from coarse to smooth, as well as to reduce oil droplet size. The use of insoluble fibers according to the present invention processed in a HPH allows for total replacement of starch and gums on reduced oil products such as mayonnaise. The result is a low oil mayonnaise without starchy/sticky mouthfeel. This brings low oil mayonnaise in parity to full fat products. The invention is directed to a reduced oil (less than 75 % oil) product that unexpectedly has the mouthfeel of a full fat product, as discussed in the Specification at page 4, lines 15-17.

Claims 1, 3, 7-11 and 13 Are Not Obvious Over Watanabe '981,
Either Alone or in View of Lowe and Schwartzberg

While Watanabe, U.S. Patent No. 5,690,981 (Watanabe) describe low calorie foodstuffs such as mousse desserts, they do not appreciate the mouthfeel benefits of excluding carbohydrate and, therefore, teach away from the present invention. The present claims specify less than about 1.0% carbohydrate. In particular, claim 25 is directed to a carbohydrate free product. A critical sensorial property, and an element of the independent claims, is that 2 ml of the emulsion will completely dissipate in a mouth of a consumer within 60 seconds. This is achieved in part by limiting the amount of carbohydrate within the edible emulsion and in part by use of insoluble fibers that are homogenized in the homogenizer according to the present invention. Watanabe fails to disclose, suggest, or achieve this important property and Lowe fail to cure this deficiency.

Contrary to the above references, the present invention as set forth in independent claim 1 is directed to an edible emulsion comprising:

- (a) less than about 75 % by weight oil;
- (b) water; and
- (c) about 0.5 to about 9.0% by weight insoluble fibers, wherein the insoluble fibers are citrus or non-citrus;

wherein the edible emulsion is coarse or smooth, comprises less than 1.0% by weight carbohydrate, and 2 ml of the emulsion will completely dissipate in a mouth of a consumer within 60 seconds; and

wherein the edible emulsion is an oil-in-water emulsion or a multiple emulsion comprising an oil-in-water phase. See Specification at page 3, lines 8-13; p. 8, lines 3-6. Among other important claim elements, such as limiting carbohydrates, the mouth dissipation parameter is not disclosed or suggested in the cited reference(s).

Independent claim 1 is further defined by the dependent claims which claim, among other things, the type of oil that may be employed, the amount of emulsifier used, the HLB of the emulsifier and oil droplet size distribution, and the order of addition of acidulants.

Independent claim 11 is directed to a method for making the edible emulsion of claim 1 wherein oil, water, insoluble fiber and emulsifier are mixed to make a coarse emulsion; and the coarse emulsion is recovered and is homogenized in a homogenizer pressurized from about 35.0 to about 650.0 bar and at a temperature from about 15°C to about 70°C to produce a smooth emulsion. The edible emulsion that is made is an oil-in-water emulsion or a multiple emulsion comprising an oil-in-water phase, comprises less than 1% by weight carbohydrate and 2 ml of the emulsion will completely dissipate in the mouth of the consumer within 60 seconds. Among other important claim elements, the mouth dissipation parameter is not disclosed or suggested in the cited references.

Applicants respectfully submit that Independent Claim 14, directed to a food product having an edible emulsion with the following characteristics, is separately patentable:

- (a) less than about 75 % by weight oil;
- (b) water; and
- (c) about 0.5 to about 9.0% by weight insoluble fibers

wherein the edible emulsion is coarse or smooth, the insoluble fibers have a length from 25 to 400 microns and a width from 3 to 20 microns and 2 ml of the food product will completely dissipate in the mouth of a consumer within 60 seconds. The insoluble fibers have a length from 25 to 400 microns and a width from 3 to 20 microns. The edible emulsion is an oil-in-water emulsion or a multiple emulsion comprising an oil-in-water phase. The food product has a viscosity greater than about 3,000

centipoise and less than about 150,000 centipoise. See Specification at p. 8, lines 8-11. Independent claim 14 is further defined by the dependent claims which claim, among other things, the type of food product, the type of emulsifier and the amount of carbohydrates present.

The Office Action refers to Example 5A of Watanabe et al. Example 5A is for a low fat mousse dessert with a viscosity (under 2,000 cps – see col. 13, lines 12-14) lower than that claimed in the present claim 14. Example 13a of Watanabe et al. also results in a much smaller viscosity. Accordingly, Claim 14 is separately patentable not only due to the specified mouth dissipation effect, but also due to a different viscosity, both of which define a different and unique product. Moreover, Claim 14 has been amended herein to specify fat and fiber contents.

The references relied on by the Office Action do not even remotely describe the claimed invention. This is true because the claimed invention is directed to a low oil edible emulsion, a method for making an edible emulsion and a food product comprising the edible emulsion wherein the resulting emulsion that is used and the food product prepared therefrom can completely dissipate in a mouth of a consumer within 60 seconds. This is achieved in part by limiting the amount of carbohydrate within the edible emulsion and in part by use of insoluble fibers that are homogenized in the homogenizer according to the present invention. Applicants surprisingly developed a low oil edible composition with insoluble fiber that is not tacky and that dissipates well while maintaining an excellent viscosity. This unexpected dissipation characteristic is one which is typical of full fat product. Applicants have been able to achieve this effect even with formulations having reduced amounts of oil, which prior art attempts have failed to achieve.

The Office Action admits that Watanabe does not mention the type of emulsion, but asserts that this would be obvious based on water content and presence of egg

white. Applicants respectfully submit that this would not be obvious to one skilled in the art based on the lack of disclosure in Watanabe. Note, the present invention required oil droplets dispersed in the water phase. In addition to droplet size and the amount of droplets dispersed, the close packing of the oil droplets results in the characteristic rheological behavior of the emulsions used to make the desired food product (e.g. mayonnaise). Watanabe fails to disclose or suggest the claimed rheological characteristics unexpectedly achieved by the present invention.

Claims 1, 3, 7-11, 13-14, 16-18 and 20-25 Are Not Obvious Over Hercules,
Either Alone or in View of Fischer and/or Schwartzberg

Claims 1, 3, 7-11, 13-14, 16-18 and 20-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hercules, in view of Fischer and also Schwartzberg. According to the Office Action, Hercules discloses low fat salad dressing made to contain a pectin derivative as a fat substitute. The dressing formulation starting at line 37 bridging col. 6 and 7 is referenced. Fischer is cited to cure the failure of Hercules to disclose insoluble fibers. According to the Office Action, no unobvious or unexpected result is seen from oil droplet size. According to the Office Action, it is also appreciated that the settings for the homogenizer are not mentioned but to use one type of colloid mill over another would have been an obvious matter of choice with regard to the particular homogenizing apparatus that was available.

Hercules is merely directed to a 0 to low fat salad dressing composition with a continuous aqueous phase having a semi-gelled pourable system comprising an amidated galacturonic acid methylester with a degree of esterification below 55% to replace part or all of the fat in the salad dressing. As described in the examples of Hercules, high levels of sugar and starch are required. Hercules is deficient, similarly to Watanabe, and these deficiencies are not remedied by Fischer and/or Shwartzberg since neither of those references is a low or no carbohydrate system.

While Hercules describe low calorie salad dressing, they do not appreciate the mouthfeel benefits of excluding carbohydrate and, therefore, teach away from the present invention. The present claims specify less than about 1.0% carbohydrate. In particular, claim 25 is directed to a carbohydrate free product. A critical sensorial property, and an element of the independent claims, is that 2 ml of the emulsion will completely dissipate in a mouth of a consumer within 60 seconds. This is achieved in part by limiting the amount of carbohydrate within the edible emulsion and in part by

use of insoluble fibers that are homogenized in the homogenizer according to the present invention. Hercules fails to disclose, suggest, or achieve this important property and Fischer, Lowe and Schwartzberg fail to cure this deficiency.

Fischer describes Herbacel AQ for applications where viscosity enhancement or thickening are acceptable as a side effect of dietary fiber fortification. While Fischer mentions ice cream and sorbet, there is not disclosure or suggestion to use Herbacel AQ in a dressing. Accordingly, one skilled in the art would have no motivation to combine Hercules with Fischer.

Claim 25 Is Separately Patentable

Applicants respectfully submit that dependent claim 25 is separately patentable and is in condition for allowance. In particular, claim 25 is directed to a carbohydrate free product. Free of carbohydrates means no carbohydrates are present within the food product.

Applicants Have Presented Evidence of Unexpected Results

While Applicants do not believe that a *prima facie* case of obviousness has been made out in the Office Action, they will nevertheless point out unexpected results achieved by the present invention. The in-mouth breakdown profile of mayonnaise compositions was assessed by an expert taster. The results in Example 3 on pp. 15-16 of the Specification demonstrate that low oil mayonnaise compositions made according to this invention, unexpectedly, had an initial mouthfeel similar to that of conventional full fat (high oil, e.g. 77 %) mayonnaise compositions and superior to that of conventional low oil mayonnaise compositions (i.e. 30 %). The results also demonstrate that the mayonnaise compositions made according to the present invention, unexpectedly, were not tacky and dissipated from the mouth in a manner similar to that of conventional high oil mayonnaise compositions.

In view of this, it is respectfully requested that the rejections be withdrawn and rendered moot.

As the independent claims are novel and non-obvious, so are the claims dependent thereon.

CONCLUSION

In light of the above amendments and remarks, applicants submit that all claims now pending in the present application are in condition for allowance. Reconsideration and allowance of the application is respectfully requested.

If a telephone conversation would be of assistance, Applicant's undersigned attorney invites the Examiner to telephone at the number provided.

Respectfully submitted,

/Ellen Plotkin/

Ellen Plotkin
Registration No. 36,636
Attorney for Applicant(s)

EP/ss
(201) 894-2253